

Bio-SynXtra™ FG Refrigeration/Compressor Oils

(ISO 15, 22, 32, 46, 68, 100, 150, 220)

Biobased, Food Grade (H1) Refrigeration, Compressor, Hydraulic, and Gear Oils

Bio-SynXtra™ FG Refrigeration/Compressor Oils are high-performance, synthetic lubricants formulated for use in refrigeration compressors, vacuum pumps, hydraulic systems, turbines, and gearboxes. These food grade (H1) oils contain GRAS (Generally Regarded as Safe) ingredients and are engineered for exceptional lubricity, anti-wear protection, and oxidation stability. Designed to meet stringent industry and military standards, they are ideal for applications requiring incidental food contact and superior thermal and oxidative performance.

Benefits

- Meets USDA H1 and FDA 21 CFR 178.3570 requirements for incidental food contact
- Readily biodegradable, environmentally non-toxic, not bioaccumulative
- Outstanding oxidation and thermal stability (TOST > 10,000 hours)
- Excellent antiwear and EP protection (4-Ball Wear as low as 0.33 mm)
- Compatible with mineral oil seals and components
- Excellent rust protection and demulsibility
- High viscosity index for enhanced performance across temperatures
- Exceptionally low pour points for cold-start protection
- Zinc-free, ashless additive system
- Contains no animal byproducts and manufactured under kosher supervision

Application / New Filling

Primary Applications:

- **Compressors and Vacuum Pumps:**
 - For rotary screw, sliding vane, reciprocating, centrifugal, and vacuum pump systems
 - ISO 32, 46, and 68 commonly used for rotary compressors
 - Higher viscosity grades preferred for reciprocating units
 - Meets and exceeds DIN 51506 VDL
- **Refrigeration Systems:**
 - Compatible with CO₂, ammonia, and CFC/HCFC systems (R-12, R-22, R-500, etc.)
 - Not recommended for HFC refrigerants (e.g., R-134a)



- **Hydraulic and Gear Applications:**
 - Meets Denison HF-0, Vickers, Rexroth, US Steel 126/127/136, DIN 51524 Part 2
 - Suitable as ashless GL-1, GL-2, GL-3 and AGMA non-EP gear oils
- **Turbine Use:**
 - Meets Steam, Gas, and R&O Turbine requirements
 - ISO 32 and 46 grades provide ASTM D-4308 Class I conductivity
 - Low volatility and high autoignition temp (>310°C)

Specifications and Approvals

- USDA H1 and FDA 21 CFR 178.3570 Compliant
- Military Spec DOD-L-24651 Type I & II (ISO 32, 46, 68, and 220)
- Patented Stabilized™ HOBBS formulation
 - U.S. Patents: 6,383,992; 6,534,454; 6,624,124; 6,620,772

Typical Specifications

ISO Grade	15	22	32	46	68	100	150	220
VISCOSITIES:								
@100°C., cSt. (D-445)	3.7	4.49	5.9	7.9	11.0	14.9	20.0	26.9
@40°C., cSt. (D-445)	15.6	20.8	30.0	44.1	67.0	98.0	142.0	209.0
Viscosity Index (D-2270)	126	131	145	152	156	159	162	164
Flash Point, COC, °C (D-92)	190	225	230	238	242	243	245	248
Pour Point, °C (D-97)	-66	-60	-56	-54	-50	-48	-46	-44
Copper Corrosion 3hr @ 100°C (D-130)	1A	1A	1A	1A	1A	1A	1A	1A
Acid Number (D-974)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
4-Ball Wear, mm (D-4172)	.40	.40	.35	.33	.33	.33	.33	.33
4-Ball EP Weld Point (kg)	160	160	200	200	200	200	200	200
4-Ball EP Load Wear Index	45	45	47	50	50	50	50	50
FZG Test A/8,3/90 (DIN 51354)	10	10	11	12	12	12	12	12
Demulsibility (D-2711)	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0
Foam Sequence I, II, III (D-892)	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam
Rust Prevention (D-665 A & B)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
TOST (ASTM-943 Hrs. 2.0 NNA)	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+
Dielectric Strength, kV (D-877)	>40	>40	>40	>40	>40	>40	>40	>40
RLI Product Item #	87880	87890	87830	87840	87850	87860	87870	87880